TABLE OF CONTENTS

VOLUME 80, 1997

January [1]

Articles

Three-Dimensional Computer Simulation of Portland Cement Hydration and Microstructure Development ☆ Dale P. Bentz 3

Transparent, Conducting, Amorphous Oxides: Effect of Chemical Composition on Electrical and Optical Properties of Cadmium Germanates ☆ Naoto Kikuchi, Hideo Hosono, Hiroshi Kawazoe, Kaiji Oyoshi, and Shunichi Hishita 22

Microstructure Development in Al_2O_3-Platelet-Reinforced Ce-ZrO_2/Al_2O_3 Composites ☆ Ryan K. Roeder, Kevin P. Trumble, and Keith J. Bowman 27

High-Resolution Electron Microscopy and Convergent-Beam Electron Diffraction of Sintered Undoped Hydroxyapatite ☆ Hans-Joachim Kleebe, E. F. Brès, D. Bernache-Assolant, and Günter Ziegler 37

Internal Oxidation of Ce^{3+}–$BaTiO_3$ Solid Solutions ☆ Darko Makovec and Drago Kolar 45

Ignition Phenomena and Reaction Mechanisms of the Self-Propagating High-Temperature Synthesis Reaction in the Titanium–Carbon–Aluminum System ☆ Wei-Chang Lee and Shyan-Lung Chung 53

Equilibrium Shape of Internal Cavities in Sapphire ☆ Jung-Hae Choi, Doh-Yeon Kim, Bernard J. Hockey, Sheldon M. Wiederhorn, Carol A. Handwerker, John E. Blendell, W. Craig Carter, and Andrew R. Roosen 62

Polarization Dependence of the Cr^{3+} R-Line Fluorescence from Sapphire and Its Application to Crystal Orientation and Piezospectroscopic Measurement ☆ Jun He and David R. Clarke 69

Interfacial Reaction of $BaTiO_3$ Ceramics with PbO–B_2O_3 Glasses ☆ Akihiko Hirata and Takashi Yamaguchi 79

Compressive Creep and Creep Failure of $8Y_2O_3$/$3Al_2O_3$-Doped Hot-Pressed Silicon Nitride ☆ Jacques Crampon, Richard Doclos, Fation Peni, Stefano Guicciardi, and Goffredo De Portu 85

Coprecipitation and Hydrothermal Synthesis of Ultrafine 5.5 mol% CeO_2–2 mol% $YO_{1.5}$–ZrO_2 Powders ☆ Jyung-Dong Lin and Jenq-Gong Duh 92

Microstructural Development of Silicon Carbide Containing Large Seed Grains ☆ Young-Wook Kim, Mamoru Mitomo, and Hideki Hirotsuru 99

Dielectric Temperature Characteristics of Cerium-Modified Barium Titanate Based Ceramics with Core–Shell Grain Structure ☆ Yung Park and Ho-Gi Kim 106

Laminated C-SiC Matrix Composites Produced by CVI ☆ W. Jack Lackey, Sundar Vaidyaraman, and Karren L. More 113

Mullite/SiAlON/Alumina Composites by Infiltration Processing ☆ María P. Albano and Alberto N. Scian 117

Joining of Carbon–Carbon Composites Using Boron and Titanium Disilicide Interlayers ☆ Parviz Dadras, Thomas T. Ngai, and Gopal M. Mehrotra 125

Low-Temperature Chemical Synthesis of Lanthanum Monoaluminate ☆ Ercan Taspinar and A. Cuneyt Tas 133

Elastic Properties of Laminated Calcium Aluminosilicate/Silicon Carbide Composites Determined by Resonant Ultrasound Spectroscopy ☆ Yongmei Liu, Yi He, Fuming Chu, Terence E. Mitchell, and Haydn N. G. Wadley 142

Sinter-Forging of Nanocrystalline Zirconia: I, Experimental ☆ Douglas C. Hague and Merrilea J. Mayo 149

In-Situ Measurement of Emissivities of Ceramic–Polymer Composite Materials ☆ Thomas C. K. Yang and Dabir S. Viswanath 157

Tape Casting of Lanthanum Chromite ☆ Michael W. Murphy, Timothy R. Armstrong, and Peter A. Smith 165

Size and Charge Effects of Dopant M on the Unit-Cell Parameters of Monoclinic Zirconia Solid Solutions $Zr_{0.98}M_{0.02}O_{2-\delta}$ (M = Ce, La, Nd, Sm, Y, Er, Yb, Sc, Mg, Ca) ☆ Masatomo Yashima, Teruo Hirose, Masato Kakihana, Yasuo Suzuki, and Masahiro Yoshimura 171

30 kbar Phase Equilibria of the La_2O_3–SrO–CuO System at 950°C ☆ Joel Geny, James K. Meen, and Don Elthon 176

Fracture Energy of Glass–Alumina Interfaces via the Bimaterial Bend Test ☆ Anthony Cazzato and K. T. Faber 181

Improvement of Cutting Performance of Silicon Nitride Tool by Adherent Coating of Thick Diamond Film ☆ Hideaki Itoh, Sadanori Shimura, Kazuyoshi Sugiyama, Hiroyasu Iwahara, and Hiromichi Sakamoto 189

Paralinear Oxidation of CVD SiC in Water Vapor ☆ Elizabeth J. Opila and Raiford E. Hann Jr. 197

Joining of Carbon–Carbon Composites for Thermonuclear Fusion Applications ☆ Milena Salvo, Patrick Lemoine, Monica Ferraris, Margherita Montorsi, and Mario Merola 206

Hydrothermal–Electrochemical Formation of $BaTiO_3$ Films: Electrochemical Characterization of the Early Stages of Growth ☆ Tomás Vargas, Hugo Díaz, Carmen I. Silva, and Víctor M. Fuenzalida 213

Sliding Wear of Al_2O_3–SiC–(Al,Si) Composites against a Steel Counterface ☆ A. Ravikiran, Vikram Jayaram, and Sanjay K. Biswas 219

Preparation and Compressive Strength Behavior of Porous Ceramics with β-$Ca(PO_3)_2$ Fiber Skeletons ☆ Yoshio Ota, Toshihiro Kasuga, and Yoshihiro Abe 225

Differentiation between Pseudocubic and Cubic Phases in Y–ZrO_2 Using Rietveld Analysis ☆ F. Sanchez-Bajo, Isidro Cachadiña, Juan de Dios Solier, Fernando Guiberteau, and Francisco L. Cumbrera 232

Communications

Modeling the Elastic–Plastic Deformation of Al/Al_2O_3 Particulate Composites ☆ Ce-Wen Nan and David R. Clarke 237

Reactive Coating of Zircon on Mullite and Mullite–Alumina Substrates ☆ Maria A. Sainz, Angel Caballero, and José S. Moya 241

Photoacoustic Thermal Characterization of Lime–Partially Stabilized Zirconia ☆ María Eugenia Contreras, Juan Serrato, Juan Zarate, Cuauhtemoc Pacheco, and Luis Villasenor 245

Immobilization of Sodium-Bearing High-Level Radioactive Waste in Synroc Containing $(Na_{0.5}Nd_{0.5})TiO_3$-Type Perovskite ☆ Liyu Li, Shanggeng Luo, Baolong Tang, and Dexi Wang 250

Phase Equilibria in the Ga_2O_3–In_2O_3 System ☆ Doreen D. Edwards, Pollyanna E. Folkins, and Thomas O. Mason 253

Phase Relations and Lattice Constants in the MgO–Al_2O_3–Ga_2O_3 System at 1550°C ☆ Roland Stalder and Karl-Heinz Nitsch 258

Synthesis of (La,Sr)MnO_3–YSZ Composite Particles by Spray Pyrolysis ☆ Takehisa Fukui, Takeshi Oobuchi, Yumi Ikuhara, Satoshi Ohara, and Kaseki Kodera 261

Fiber Coatings for SiC-Fiber-Reinforced BMAS Glass-Ceramic Composites ☆ Ellen U. Sun, Steven R. Nutt, and John J. Brennan 264
Fabrication, Mechanical Properties, and Electrical Conductivity of Co_3O_4 Ceramics ☆ Shinichi Sakamoto, Masaru Yoshinaka, Ken Hirota, and Osamu Yamaguchi 267
Reaction-Bonding Preparation of $Si_3N_4/MoSi_2$ and Si_3N_4/WSi_2 Composites from Elemental Powders ☆ Bing-Rong Zhang and Francesco Marino 269
Powder Preparation and Sintering Characteristics of Rare-Earth Sesquisulfide Ceramics ☆ Cheryl M. Vaughan-Forster and William B. White 273

February [2]

Articles

In situ Profiles of Oxygen Diffusion in $SrTiO_3$: Bulk Behavior and Boundary Effects ☆ Ingrid Denk, Frank Noll, and Joachim Maier 279
Effect of Particle-Size Distribution on the Microstructural Evolution in the Intermediate Stage of Sintering ☆ Fuh-Shan Shiau, Tsang-Tse Fang, and Tsung-Hsing Leu 286
Colloidal Processing of a Very Fine $BaTiO_3$ Powder—Effect of Particle Interactions on the Suspension Properties, Consolidation, and Sintering Behavior ☆ Lennart Bergström, Kazuo Shinozaki, Hiroyuki Tomiyama, and Nobuyasu Mizutani 291
Duplex α,β-Sialon Ceramics Stabilized by Dysprosium and Samarium ☆ Thommy Ekström, Lena K. L. Falk, and Zhi-Jian Shen 301
Refractive Index Dispersion of Sodium Magnesium Silicate Glasses for Ultralow-Loss Fibers ☆ Shin-ichi Todoroki, Shigeki Sakaguchi, and Miguel Peeters 313
Effects of Palladium Dispersions on Gas-Sensitive Conductivity of Semiconducting Ga_2O_3 Thin-Film Ceramics ☆ Andreas Bausewein, Birgitta Hacker, Maximilian Fleischer, and Hans Meixner 317
Preparation and Structural Investigation of $Bi_{16}(Sr,Ca)_{14}O_{38}$ ☆ Winnie Wong-Ng, Robert S. Roth, and Claudia J. Rawn 324
Desintering Process in the Gas-Pressure Sintering of Silicon Nitride ☆ Shyh-Lung Hwang, Paul F. Becher, and Hua-Tay Lin 329
Use of Ferroelectric Hysteresis Parameters for Evaluation of Niobium Effects in Lead Zirconate Titanate Thin Films ☆ Radosveta D. Klissurska, Alexander K. Tagantsev, Keith G. Brooks, and Nava Setter 336
Application of the SIMS Method in Studies of Cr Segregation in Cr-Doped CoO: I, Aspects of Quantitative Analysis ☆ Andrzej Bernasik, Janusz Nowotny, Stanislas Scherrer, and Sylvian Weber 343
Application of the SIMS Method in Studies of Cr Segregation in Cr-Doped CoO: II, Depth Profiles ☆ Andrzej Bernasik, Janusz Nowotny, Stanislas Scherrer, and Sylvian Weber 349
Shear Damage Mechanisms in a Woven, Nicalon-Reinforced Ceramic-Matrix Composite ☆ William P. Keith and Keith T. Kedward 357
Preparation and Analysis of a Silicon Carbide Composite Membrane ☆ Ping-K'un Lin and Dah-Shyang Tsai 365
Dopant Distributions in Rare-Earth-Doped Alumina ☆ A. Mark Thompson, Kamal K. Soni, Helen M. Chan, Martin P. Harmer, David B. Williams, Jan M. Chabala, and Riccardo Levi-Setti 373
Influence of Porosity on Friction and Wear of Tetragonal Zirconia Polycrystal ☆ Yingjie He, Louis Winnubst, Anthonie J. Burggraaf, Henk Verweij, Paul G. Th. van der Varst, and Bert de With 377
Mechanics of Constant-Rate Filter Pressing of Highly Flocculated Slurries ☆ Bruce J. Kellett and Chiang-Yao Lin 381
Microstructural Development during the Microwave Sintering of Yttria–Zirconia Ceramics ☆ Sharon A. Nightingale, H. K. Worner, and D. P. Dunne 394
Effects of Shape and Size of Inclusions on the Sintering of ZnO–ZrO_2 Composites ☆ Yohsuke Nakada and Toshio Kimura 401
Effect on Electrical Properties of Barium and Strontium Additions in the Lead Lanthanum Zirconate Stannate Titanate System ☆ Seung-Eek Park, Kelley Markowski, Shoko Yoshikawa, and L. Eric Cross 407
Raman Spectroscopic Investigations of Dicalcium Silicate: Polymorphs and High-Temperature Phase Transformations ☆ Corinne Remy, Bruno Reynard, and Michel Madon 413
Influence of Cu_2O and $CuAlO_2$ Interphases on Crack Propagation at Cu/α-Al_2O_3 Interfaces ☆ Ivar E. Reimanis, Kevin P. Trumble, Kirk A. Rogers, and Brian James Dalgleish 424
Measurement of Crack Tip Toughness in Alumina as a Function of Grain Size ☆ Jürgen Seidel and Jürgen Rödel 433
Interfacial Reactions between Sapphire and Silver–Copper–Titanium Thin Film Filler Metal ☆ Seiichi Suenaga, Masako Nakahashi, Miho Maruyama, and Takayuki Fukasawa 439
Determination of the Mechanical Response of Sintering Compacts by Cyclic Loading Dilatometry ☆ Peter Z. Cai, Gary L. Messing, and David L. Green 445
Deposition of Oxide Coatings on Fiber Cloths by Electrostatic Attraction ☆ Michael K. Cinibulk 453
Corrosion of MgO–$MgAl_2O_4$ Spinel Refractory Bricks by Calcium Aluminosilicate Slag ☆ Kiyoshi Goto, Bernard B. Argent, and William E. Lee 461
Synthesis of Calcium Silicate Hydrate with Ca/Si = 2 by Mechanochemical Treatment ☆ Kaori Sasaki, Tsuguya Masuda, Hideki Ishida, and Takeshi Mitsuda 472
Compositional Studies of Lanthanum-Modified Morphotropic Phase Boundary $Pb(Mg_{1/3}Nb_{2/3})O_3$–$PbTiO_3$ Ceramics ☆ Surya M. Gupta and Dwight Viehland 477
Optimization of Dispersion and Viscosity of a Ceramic Jet Printing Ink ☆ Wan D. Teng, Mohan J. Edirisinghe, and Julian R. G. Evans 486

Communications

Strain Tolerant Porous Silicon Nitride ☆ Yasuhiro Shigegaki, Manuel E. Brito, Kiyoshi Hirao, Motohiro Toriyama, and Shuzo Kanzaki 495
Atomic Structure of a 36.8 (210) Tilt Grain Boundary in TiO_2 ☆ D. J. Wallis, N. D. Browning, P. D. Nellist, S. J. Pennycook, I. Majid, Y. Liu, and J. B. Vander Sande 499
Double Cantilever Beam Measurements of Crack Growth in Indium(III) Phosphide ☆ Linda M. Braun and Grady S. White 503
Fiber–Matrix Interface Properties of Single-Fiber Microcomposites as Measured by Fiber Pushin Tests ☆ Ronald J. Kerans, Francis Rebillat, and Jacques–Lamon 506
High-Temperature Bridging in a Vitreous Bonded Alumina ☆ James E. Webb, Karl Jakus, and John E. Ritter 509

Damage Mechanisms around Hardness Indentations in Ti_3SiC_2 ☆ Tamer El-Raghy, Antonios Zavaliangos, Michel W. Barsoum, and Surya R. Kalidindi 513
Low-Temperature ac Conductivity of Mixed Mobile Ion Germanate Glasses ☆ Himanshu Jain and Xiangdong Lu 517
In Situ Synthesis of TiC_p/Ni_3Al Composites under High Pressure ☆ Haozhe Liu, Aimin Wang, Luhong Wang, Bingzhe Ding, and Zhuangqi Hu 521

March [3]

Articles

Thermodynamic Assessment of the Strontium–Copper–Oxygen System ☆ Daniel Risold, Bengt Hallstedt, and Ludwig J. Gauckler 527
Thermodynamic Modeling and Calculation of Phase Equilibria in the Strontium–Calcium–Copper–Oxygen System at Ambient Pressure ☆ Daniel Risold, Bengt Hallstedt, and Ludwig J. Gauckler 537
Influence of Aluminum Titanate Formation on Sintering of Bimodal Size-Distributed Alumina Powder Mixtures ☆ Seiichi Taruta, Yousuke Itou, Nobuo Takusagawa, Kiyoshi Okada, and Nozomu Ōtsuka 551
Influence of Particle Contact on the Estimation of Powder Reaction Kinetics of Binary Mixtures ☆ Akira Shimizu and Yu-Jun Hao 557
Oxidation of the Carbon Interface in Nicalon-Fiber-Reinforced Silicon Carbide Composite ☆ Charles F. Windisch Jr., Charles H. Henager Jr., Gary D. Springer, and Russell H. Jones 569
Effect of Zwitterionic Surfactants on Interparticle Forces, Rheology, and Particle Packing of Silicon Nitride Slurries ☆ William A. Ducker, Erik P. Luther, David R. Clarke, and Fred F. Lange 575
Thermal Stability of Hexaaluminate Film Coated on SiC Substrate for High-Temperature Catalytic Application ☆ Hiroshi Inoue, Koshi Sekizawa, Koichi Eguchi, and Hiromichi Arai 584
Plasma Spraying of Lanthanum Chromite Films for Solid Oxide Fuel Cell Interconnection Application ☆ Lewis J. H. Kuo, Shailesh D. Vora, and Subhash C. Singhal 589
Effect of Stoichiometry on Mechanical Properties of $(Pb_{0.875}Ba_{0.125})[(Mg_{1/3}Nb_{2/3})_{0.5}(Zn_{1/3}Nb_{2/3})_{0.3}Ti_{0.2}]O_3$ Relaxor Dielectric Ceramic ☆ Hideyuki Kanai, Takayuki Fukazawa, Osamu Furukawa, and Yohachi Yamashita 594
Grain-Boundary Sliding in Fluorine-Doped Silicon Nitride ☆ Giuseppe Pezzotti and Ken'ichi Ota 599
New Ternary Nitride in the Ti-Al-N System ☆ Hee Dong Lee and William T. Petuskey 604
Intermediate-Temperature Environmental Effects on Boron Nitride-Coated Silicon Carbide-Fiber-Reinforced Glass-Ceramic Composites ☆ Ellen U. Sun, Hua-Tay Lin, and John J. Brennan 609
The α–β Transformation in Silicon Nitride Single Crystals ☆ Hisayuki Suematsu, Mamoru Mitomo, Terence E. Mitchell, John J. Petrovic, Osamu Fukunaga, and Naoki Ohashi 615
Neutron Diffraction Observations of Ferroelastic Domain Switching and Tetragonal-to-Monoclinic Transformation in Ce-TZP ☆ Erich H. Kisi, Shane J. Kennedy, and Christopher J. Howard 621
Particle-Precipitation-Aided Chemical Vapor Deposition of Titanium Nitride ☆ Jan Pieter Dekker, Paul J. van der Put, Hubert J. Veringa, and Joop Schoonman 629
Sintering of Fine Oxide Powders: II, Sintering Mechanisms ☆ Pei-Lin Chen and I-Wei Chen 637
Packing of Cylindrical Particles with a Length Distribution ☆ Rui-Ping Zou, Xin-Yu Lin, Ai-Bing Yu, and Patrick Wong 646
Dielectric and Ordering Behavior in $Pb_xCa_{1-x}TiO_3$ ☆ Ramaratnam Ganesh and Edward Goo 653
Effect of Composition on Mullitization Behavior of α-Alumina/Silica Microcomposite Powders ☆ Michael D. Sacks, Keyun Wang, Gary W. Scheiffele, and Nazim Bozkurt 663
Simple Method for Determining Frictional Sliding Resistance and Frictional Energy Dissipation in Layered Ceramics ☆ Desiderio Kovar and Michael Thouless 673
Electron Paramagnetic Resonance Investigation of Acceptor Centers in $Pb(Zr,Ti)O_3$ Ceramics ☆ William L. Warren, Bruce A. Tuttle, F. Christopher Rong, Gary J. Gerardi, and Edward H. Poindexter 680
Redistribution of a Grain-Boundary Glass Phase during Creep of Silicon Nitride Ceramics ☆ Qiang Jin, Xiao-Guang Ning, David S. Wilkinson, and George C. Weatherly 685
Elastic Properties and Microcracking Behavior of Particulate Titanium Diboride–Silicon Carbide Composites ☆ Ming-Jen Pan, Patricia A. Hoffman, David J. Green, and John R. Hellmann 692
Thermal Diffusivity/Conductivity of Magnesium Oxide/Silicon Carbide Composites ☆ Jie Juo, Ron Stevens, and Roy Taylor 699
Titanium Nitride/Carbon Coatings on Graphite Fibers ☆ Yin Liu, David R. Treadwell, Mike R. Kannisto, Brian L. Mueller, and Richard M. Laine 705
On the Thermodynamic Stability of Amorphous Intergranular Films in Covalent Materials ☆ Pawel Keblinski, Simon R. Phillpot, Dieter Wolf, and Herbert Gleiter 717
Influence of Spray Angle on the Pore and Crack Microstructure of Plasma-Sprayed Deposits ☆ Jan Ilavsky, Andrew J. Allen, Gabrielle G. Long, Susan Krueger, Christopher C. Berndt, and Herbert Herman 733
Effect of Solvent on Titania Particle Formation and Morphology in Thermal Hydrolysis of $TiCl_4$ ☆ Hong Kyu Park, Do Kyung Kim, and Chong Hee Kim 743
Microstructural Evolution and Mechanical Properties of Si_3N_4 with Yb_2O_3 as a Sintering Additive ☆ Hyoungjoon Park, Hyoun-Ee Kim, and Koichi Niihara 750

Communications

Silicon Carbide Powder Synthesis from Silicon Monoxide and Methane ☆ Utami Steiowati and Shoichi Kumura 757
Production of TiB_2–TiN Composites by Combustion Synthesis and Their Properties ☆ Ryuichi Tomoshige, Akio Murayama, and Toru Matsushita 761
Active Electrochemical Dissolution of Molybdenum and Application for Room-Temperature Synthesis of Crystallized Luminescent Calcium Molybdate Film ☆ Woo-Seok Cho, Masatomo Yashima, Masato Kakihana, Akihiko Kudo, Tadayoshi Sakata, and Masahiro Yoshimura 765
Formation of Lead Magnesium Niobate Perovskite from Niobate Precursors Having Varying Magnesium Content ☆ Pattayil Alias Joy and Krishnan Sreedhar 770
Subcritical Crack-Growth Behavior of Borosilicate Glass under Cyclic Loads: Evidence of a Mechanical Fatigue Effect ☆ Sara J. Dill, Stephen J. Bennison, and Reinhold H. Dauskardt 773

Porous Glass-Ceramics with Bacteriostatic Properties in Silver-Containing Titanium Phosphates: Control of Release of Silver Ions from Glass-Ceramics into Aqueous Solution ☆ Toshihiro Kasuga, Hisashi Kume, and Yoshihiro Abe 777
Probing 3-D Structural Distortions and Coordination Changes at $SrTiO_3$ Grain Boundaries Using Electron Energy Loss Spectroscopy ☆ David J. Wallis and Nigel D. Browning 781
Diamond Synthesis from Graphite in the Presence of $MnCO_3$ ☆ Varanasi Srikanth, Minoru Akaishi, Shinobu Yamaoka, Hirohshi Yamada, and Takashi Taniguchi 786
Low-Temperature Sintering and High-Strength $Pb(Zr,Ti)O_3$-Matrix Composites Incorporating Silver Particles ☆ Hae Jin Hwang, Koji Watari, Mutsuo Sando, Motohiro Toriyama, and Koichi Niihara 791
The High-Temperature Proton Conductor Strontium Zirconate: Thermogravimetry of Water Uptake ☆ Frank Krug and Tilman Schober 794
Oxidation-Induced Toughening and Strengthening of Y_2O_3/SiC Nanocomposites ☆ Masashi Yoshimura, Tatsuki Ohji, and Koichi Niihara 797
Effect of Matrix Grain Growth Kinetics on Composite Densification ☆ Olivier Sudre and Fred F. Lange 800
Monoclinic-to-Tetragonal Phase Transformation in a Ceramic Rare-Earth Orthoniobate, $LaNbO_4$ ☆ Li Jian and C. M. Wayman 803
Upper-Phase Stability Limit of Bi-2212 ☆ J. L. MacManus-Driscoll, Y. H. Li, and Z. Yi 807
Effects of Oxidation on the Flaw-Limited Strengths of Brittle Materials ☆ Ronald D. Munro 811
Local Dendrite Development during Seeded Peritectic Solidification of Large $YBa_2Cu_3O_{7-\delta}$ Grains ☆ Wai Lo, Hin-Tak Leung, David A. Cardwell, and James C. L. Chow 813
Melilite Formation in a Samarium-Stabilized α-Sialon Ceramic during Postsintering Heat Treatments ☆ Zhijian Shen, Daniel Ashkin, Oleg Babushkin, and Thommy Ekström 817
Preparation of Porous Glass-Ceramics with a Skeleton of NASICON-Type Crystal $CuTi_2(PO_4)_3$ ☆ Kousuke Yamamoto, Toshihiro Kasuga, and Yoshihiro Abe 822
Comment on "Kinetic Model for the Growth of Silicon Carbide by the Reaction of Liquid Silicon with Carbon" ☆ William B. Hillig 825
Reply to "Comment on 'Kinetic Model for the Growth of Silicon Carbide by the Reaction of Liquid Silicon with Carbon' " ☆ Hong Zhou and Raj N. Singh 827

Correction
Rheological Property and Stress Development during Drying of Tape-Cast Ceramic Layers ☆ Jennifer A. Lewis, Kimberly A. Blackman, Andrea L. Ogden, Jason A. Payne, and Lorraine F. Francis 828

April[4]
Articles
Interlaboratory Verification of Silicon Nitride Tensile Creep Properties ☆ William E. Luecke and Sheldon M. Wiederhorn 831
Correlation between Surface Area Reduction and Ultrasonic Velocity in Sintered Zinc Oxide Powders ☆ Louis Peter Martin and Moshe Rosen 839
Protons and Deuterons in Magnesium-Doped Sapphire Crystals ☆ Rafael Ramírez, Roberto González, Inmaculada Colera, and Rafael Vila 847
High-Temperature, High-Pressure X-ray Investigation of Dicalcium Silicate ☆ Corinne Remy, Denis Andrault, and Michel Madon 851
High-Temperature Ionic Conduction in Multicomponent Solid Oxide Solutions Based on Zirconia ☆ Axel Weyl and Dieter Janke 861
High-Temperature Environmental Stability of the Compounds in the Al_2O_3–Y_2O_3 System ☆ Tai-Il Mah, Kristin A. Keller, Sankar Sambasivan, and Ronald J. Kerans 874
Microstructure Characterization in Superplastically Deformed Silicon Nitride ☆ Philippe Burger, Richard Duclos, and Jacques Crampon 879
Analysis of (Cr,Mo) Oxycarbide Films Grown on Stainless Steel via Metalloorganic Chemical Vapor Deposition ☆ Ming-Hung Lo and Wen-Cheng J. Wei 886
Stable and Metastable Phase Relations in the System Alumina–Zirconia–Yttria ☆ Sergij M. Lakiza and Lidia M. Lopato 893
Young's Modulus, Flexural Strength, and Fracture of Yttria-Stabilized Zirconia versus Temperature ☆ Jane W. Adams, Robert Ruh, and K. S. Mazdiyasni 903
Chemical Interactions between La-Sr-Mn-Fe-O-Based Perovskites and Yttria-Stabilized Zirconia ☆ Lutz Kindermann, Dasarathi Das, Dhirendra Bahadur, Reinhard Weiß, Hubertus Nickel, and Klaus Hilpert 909
Kinetic Analysis of Combustion Synthesis of Lead Magnesium Niobate from Metal Carboxylate Gels ☆ Yeshwanth Narendar and Gary L. Messing 915
Dissolution Rate of Silicon Nitride Ceramics into Molten CaO–Al_2O_3–SiO_2 Slags ☆ Shoichirou Taira, Yasuyuki Yamasaki, Kunihiko Nakashima, and Katsumi Mori 925
Fabrication and Sintering of Fine Yttria-Doped Ceria Powder ☆ Jan Van herle, Teruhisa Horita, Tatsuya Kawada, Natsuko Sakai, Harumi Yokokawa, and Masayuki Dokiya 933
Synthesis of Nickel Sulfide Powders by Thioacetamide in the Presence of Urea ☆ Jason Grau and Mufit Akinc 941
Synthesis of Submicrometer Titanium Carbide Powders ☆ Rasit Koc and Jeffrey S. Folmer 952
Effect of Composition on the Electromechanical Properties of $(1-x)Pb(Mg_{1/3}Nb_{2/3})O_3$–$xPbTiO_3$ Ceramics ☆ Joe Kelly, Mark Leonard, Chutima Tantigate, and Ahmad Safari 957
Influence of Acidity on the Electrostatic Stability of Alumina Suspensions in Ethanol ☆ Gonghou Wang, Partho Sarkar, and Patrick S. Nicholson 965
Synthesis of Pyrochlore-Free $0.9Pb(Mg_{1/3}Nb_{2/3})O_3$–$0.1PbTiO_3$ Ceramics via a Soft Mechanochemical Route ☆ Jong-Gab Baek, Tetsuhiko Isobe, and Mamoru Senna 973
Preparation of Spherical Yttria-Stabilized Zirconia Powders by Reactive-Spray Atomization ☆ Vladimir Belov, Irena Belov, and Lilian Harel 982

Communications
Fracture Resistance Behavior of Multilayered Silicon Nitride ☆ Tatsuki Ohji, Yasuhiro Shigegaki, Tatsuya Miyajima, and Shuzo Kanzaki 991
Phase Diagram and Microstructure in the ZnO–Pr_2O_3 System ☆ Sung-Yong Chun, Naoki Wakiya, Hiroshi Funakubo, Kazuo Shinozaki, and Nobuyasu Mizutani 995
Gel Precursor to Silicon Oxycarbide Glasses with Ultrahigh Ceramic Yield ☆ Gian Domenico Sorarù, Renzo Campostrini, Stefano Maurina, and Florence Babonneau 999
ZrO_2–CeO_2 Alloys as Candidate Structural Materials for Cryogenic Application ☆ Lai-Feng Li, Yi-Yi Li, Orfeo Sbaizero, and Sergio Meriani 1005
Mass Spectrometric Identification of Si–O–H(g) Species from the Reaction of Silica with Water Vapor at Atmospheric Pressure ☆ Elizabeth J. Opila, Dennis S. Fox, and Nathan S. Jacobson 1009
Effect of Yttrium and Lanthanum on the Tensile Creep Behavior of Aluminum Oxide ☆ Junghyun Cho, Martin P. Harmer, Helen M. Chan, Jeffrey M. Rickman, and A. Mark Thompson 1013
Low Thermal Conductivity in Garnets ☆ Nitin P. Padture and Paul G. Klemens 1018
Vacuum Ultraviolet Spectra of Silver in a Borosilicate Glass ☆ Kunio Yata and Takashi Yamaguchi 1021
Homogeneity Ranges of Phases $Sr_{4-x}Ln_{2x/3}Ti_4O_{12}$ (Ln = Sm to Lu) and $Sr_{1-y}Eu^{II}_yTiO_3$ ☆ Carlos E. Bamberger 1024
Hertzian Contact Damage in Porous Alumina Ceramics ☆ Bruno A. Latella, Brian H. O'Connor, Nitin P. Padture, and Brian R. Lawn 1027
Novel Electrochemical Route for Reduction of Superconducting $Bi_2Sr_2CaCu_2O_{8+\delta}$ ☆ Motohide Matsuda, Hideki Tamada, Kimihiro Yamashita, Takao Umegaki, and Michihiro Miyake 1032
Effect of Additives on the Electromechanical Properties of $Pb(Zr,Ti)O_3$–$Pb(Y_{2/3}W_{1/3})O_3$ Ceramics ☆ Seok-Jin Yoon, Amod Joshi, and Kenji Uchino 1035
Super-Water-Repellent Al_2O_3 Coating Films with High Transparency ☆ Kiyoharu Tadanaga, Noriko Katata, and Tsutomu Minami 1040
Microscopic Origin of the PTC Effect in Niobium-Doped Barium Titanate ☆ Cristophe Gillot, Jean-Pierre Michenaud, Isabelle Baukens, and Paul-Henri Duvigneaud 1043
Effect of Weight Loss on Liquid-Phase-Sintered Silicon Carbide ☆ Tor Grande, Håkon Sommerset, Eirik Hagen, Kjell Wiik, and Mari-Ann Einarsrud 1047

May [5]
Articles
Decomposition of Ruthenium Oxides in Lead Borosilicate Glass ☆ Kenji Adachi and Hiroko Kuno 1055
Influence of Crystal Structure on the Fatigue Properties of $Pb_{1-x}La_x(Zr_y,Ti_z)O_3$ Thin Films Prepared by Pulsed-Laser Deposition Technique ☆ Wen-Jen Lin, Tseung-Yuen Tseng, Sheuan-Perng Lin, Shun-Lih Tu, Hong Chang, Sheng-Jenn Yang, and I-Nan Lin 1065
Scaling Analysis for the Axial Displacement and Pressure of Flextensional Transducers ☆ Wan Y. Shih, Wei-Heng Shih, and Ilhan A. Aksay 1073
Dedensification and Anomalous Grain Growth during Sintering of Undoped Barium Titanate ☆ Marlyse Demartin, Claude Hérard, Claude Carry, and Jacques Lemaître 1079
Thermodynamic Assessment of the Bismuth–Strontium–Oxygen Oxide System ☆ Bengt Hallstedt, Daniel Risold, and Ludwig J. Gauckler 1085
Dielectric Measurements on High-Q Ceramics in the Microwave Region ☆ Denesh C. Dube, Rudolf Zurmuhlen, Andrew Bell, Nava Setter, and Wolfram Wersing 1095
Time–Temperature–Transformation Diagrams for Borosilicate Glasses and Preparation of Chemically Durable Porous Glasses ☆ Kunihiko Nakashima, Kenji Noda, and Katsumi Mori 1101
Fabrication and Microstructures of $MoSi_2$ Reinforced–Si_3N_4 Matrix Composites ☆ John J. Petrovic, Maria I. Pena, and H. Harriett Kung 1111
Space-Charge Distribution across Internal Interfaces in Electroceramics Using Electron Holography: I, Pristine Grain Boundaries ☆ Venkataraman Ravikumar, Richard P. Rodrigues, and Vinayak P. Dravid 1117
Space-Charge Distribution across Internal Interfaces in Electroceramics Using Electron Holography: II, Doped Grain Boundaries ☆ Venkataraman Ravikumar, Richard P. Rodrigues, and Vinayak P. Dravid 1131
Reduction and Sintering of a Nickel–Dispersed-Alumina Composite and Its Properties ☆ Tohur Sekino, Toshio Nakajima, Satoru Ueda, and Koichi Niihara 1139
Abnormal Grain Growth of Alumina ☆ Il-Joon Bae and Sunggi Baik 1149
Texture and Formation Mechanism of Fibrous Calcium Hydroxyapatite Particles Prepared by Decomposition of Calcium–EDTA Chelates ☆ Kazuhiko Kandori, Naoto Horigami, Akemi Yasukawa, and Tatsuo Ishikawa 1157
Structural Analysis of Inclusions in β-Silicon Carbide Whiskers Grown from Rice Hulls ☆ Kevin M. Knowles and Maharajapuram V. Ravichandran 1165
Fundamental Material Aspects Underlying the Preparation of High-Temperature Superconducting $(Bi,Pb)_{2+x}Sr_2Ca_2Cu_3O_{10+d}$ Ceramics ☆ Peter J. Majewski, Stefanie Kaesche, and Fritz Aldinger 1174
Texture Development by Templated Grain Growth in Liquid-Phase-Sintered α-Alumina ☆ Matthew M. Seabaugh, Ingrid H. Kerscht, and Gary L. Messing 1181
Chemical Durability of Lead-Oxide-Based, Thick-Film Binder Glasses ☆ Douglas M. Mattox and Joshua H. Robinson 1189
Electronic and Structural Properties of Bulk γ-Al_2O_3 ☆ Shang-Di Mo, Yong-Nian Xu, and Wai-Yim Ching 1193
Hopping and Ionic Conduction in Tin Oxide-Based Thick-Film Resistor Compositions ☆ K. M. Anisur Rahman, Susan C. Schneider, and Martin A. Seitz 1198
Effect of Hydroxyl Content on Thermally Induced Change in Surface Morphology of Lithium Niobate (000$\bar{1}$) Substrates ☆ Hirotoshi Nagata, Kaori Shima, and Junichiro Ichikawa 1203
Titania as a Sintering Additive in Indium Oxide Ceramics ☆ Nicolas Nadaud, Doh-Yeon Kim, and Philippe Boch 1208
Grain Boundary Film Thicknesses in Superplastically Deformed Silicon Nitride ☆ Chong-Min Wang, Mamoru Mitomo, Toshiyuki Nishimura, and Yoshio Bando 1213

Effect of Product Conductivity on Field-Activated Combustion Synthesis ☆ Aigou Feng and Zuhair A. Munir 1222
Comparison of Solid-State and Spray-Pyrolysis Synthesis of Yttrium Aluminate Powders ☆ May Nyman, James Caruso, Mark J. Hampden-Smith, and Tovio T. Kodas 1231
Polyhedral Arrangements in Lanthanum Aluminoborate Glasses ☆ Richard K. Brown, David R. Tallant, and Gary L. Turner 1239
Composite Laminates in Plane Stress: Constitutive Modeling and Stress Redistribution due to Matrix Cracking ☆ Guy M. Genin and John W. Hutchinson 1245
Pressureless Sintering of Si_3N_4 Ceramic Using AlN and Rare-Earth Oxides ☆ Zhen-Kun Huang, Anatoly Rosenflanz, and I-Wei Chen 1256
Phase Equilibria Among Acid Calcium Phosphates ☆ Roger I. Martin and Paul W. Brown 1263
Metal–Oxide Interactions on Copper-Segregated and Copper-Deposited TiO_2 Rutile (001) Surfaces ☆ Paul M. Thibado and Dawn A. Bonnell 1267

Communications
Microwave Synthesis of Ultrafine Silicon Carbide Whiskers ☆ Changhong Dai, Xianpeng Zhang, Jinsong Zhang, Yongjin Yang, Lihua Cao, and Fei Xia 1274
Chemical, Mechanical, and Tribological Properties of Pulsed-Laser-Deposited Titanium Carbide and Vanadium Carbide ☆ James E. Krzanowski and Robert E. Leuchtner 1277
A Test Method to Measure Shear Strength of Ceramic Joints at High Temperatures ☆ Özer Ünal, Iver E. Anderson, and Sina I. Maghsoodi 1281
Carbon Coating of Nextel 550 and 720 by Pitch–Toluene Pyrolysis ☆ Edmund H. Moore, Tai-il Mah, and Peter W. Brown 1285
Effect of Quasi-Static Loading Rate on Damage Formation in Silicon Carbide Reinforced Calcium Aluminosilicate Unidirectional Composites ☆ Mark E. Walter and Guruswami Ravichandran 1289
Stiffness of Grain-Bridging Elements in a Monolithic Alumina ☆ Jack C. Hay and Kenneth W. White 1293
Characterization of Ceramic Foams through Fourier Analysis of Digital Images ☆ Matthew J. Hall and Miguel Bracchini 1298
Formation of Anatase Porous Ceramics by Hydrothermal Hot-Pressing of Amorphous Titania Spheres ☆ Kazumichi Yanagisawa, Koji Ioku, and Nakamichi Yamasaki 1303
Effect of Milling Conditions on the Strength of Alumina–Silicon Carbide Nanocomposites ☆ Young-Keun Jeong, Atsushi Nakahira, Peter E. D. Morgan, and Koichi Niihara 1307
Effect of Grain Size and Test Configuration on the Wear Behavior of Alumina ☆ Fei Xiong, Rafael R. Manory, Liam Ward, Mircea Terheci, and Sri Lathabai 1310
Grain-Oriented Microstructure of Alumina Ceramics Made through the Injection Molding Process ☆ Keizo Uematsu, Shigeru Ohsaka, Nobuhiro Shinohara, and Masataro Okumiya 1313
Microwave Dielectrics in the $(La_{1/2}Na_{1/2})TiO_3$–$Ca(Fe_{1/2}Nb_{1/2})O_3$ System ☆ Hyun-Jai Kim, Sergey Kucheiko, Seok-Jin Yoon, and Hyung-Jin Jung 1316
Chevron-Notched Toughness of Materials with Rising Fracture Resistance Curves ☆ Alan T. Zehnder, Chung-Yuen Hui, and Eric D. Rodeghiero 1319

Corrections
Crack Stability and Its Effect on Fracture Toughness of Hot-Pressed Silicon Nitride Beam Specimens ☆ Isa Bar-On, Francis I. Baratta, and Kyu Cho 1323
Determination of the Mechanical Response of Sintering Compacts by Cyclic Loading Dilatometry ☆ Peter Z. Cai, Gary L. Messing, and David J. Green 1323

June [6]

Articles

Heat Capacity Changes at the Glass Transition in Mixed-Alkali Tellurite Glasses ☆ Takayuki Komatsu, Tsutomu Noguchi, and Ryuji Sato 1327
Effective Properties of Ferroelectric and/or Ferromagnetic Composites: A Unified Approach and Its Application ☆ Ce-Wen Nan and David R. Clarke 1333
"Classical" Superplasticity of SiAlON Ceramics ☆ Anatoly Rosenflanz and I-Wei Chen 1341
Effect of Crystallinity on Strength and Fracture Toughness of Li_2O–Al_2O_3–CaO–SiO_2 Glass-Ceramics ☆ Kenneth J. Anusavice and Nai-zheng Zhang 1353
Spin Coating of a $Ca(Ti,Fe)O_3$ Dense Film on a Porous Substrate for Electrochemical Permeation of Oxygen ☆ Hideaki Itoh, Hiroshi Asano, Keika Fukuroi, Makoto Nagata, and Hiroyasu Iwahara 1359
Processing of Piezocomposites by Fused Deposition Technique ☆ Amit Bandyopadhyay, Raj K. Panda, Victor F. Janas, Mukesh K. Agarwala, Stephen C. Danforth, and Ahmad Safari 1366
Characterization of Ceramic Materials with BIGDIFF: A Synchrotron Radiation Debye–Scherrer Powder Diffractometer ☆ Brian H. O'Connor, Arie van Riessen, John Carter, Graeme R. Burton, David J. Cookson, and Richard F. Garrett 1373
Stress-Enhanced Displacements in PLZT Rainbow Actuators ☆ Guang Li, Eugene Furman, and Gene H. Haertling 1382
Electroplastic Effect in Cast Polycrystalline NaCl with Various Orientations of the Electric Field ☆ Di Yang and Hans Conrad 1389
Transient Growth Bands in Silicon Nitride Cooled in Rare-Earth-Based Glass ☆ Chong-Min Wang, Xiaoqing Pan, Hui Gu, Gerd Duscher, Michael J. Hoffmann, Rowland M. Cannon, and Manfred Rühle 1397
Physical Thermodynamic Model of Alkali and Alkaline-Earth Fluorozirconate Glass-Forming Melts ☆ Tor Grande, Siv Aasland, and Stein Julsrud 1405
Acid–Base Reactions of Transition Metal Oxides in the Solid State ☆ John A. Duffy 1416
High-Thermal-Conductivity Aluminum Nitride Ceramics: The Effect of Thermodynamic, Kinetic, and Microstructural Factors ☆ T. Barrett Jackson, Anil V. Virkar, Karren L. More, Ralph B. Dinwiddie, Jr., and Raymond A. Cutler 1421
Preceramic Polymer Route to Amorphous and Crystalline Potassium Aluminosilicate Powders and Their Electrorheological Properties ☆ Rita Baranwal and Richard M. Laine 1436
Analysis of Size Dependence of Ceramic Fiber and Whisker Strength ☆ Yuntian T. Zhu, William R. Blumenthal, Seth T. Taylor, Terry C. Lowe, and Benlian Zhou 1447
Effect of Tetravalent Dopants on Raman Spectra of Tetragonal Zirconia ☆ Dae-Joon Kim, Joo-Wung Jang, and Hong-Lim Lee 1453

Domain-Related Phase Transitionlike Behavior in Lead Zinc Niobate Relaxor Ferroelectric Single Crystals ☆ Maureen L. Mulvihill, L. Eric Cross, Wenwu Cao, and Kenji Uchino 1462
Experimental Design Applied to the Chemical Durability of Sol–Gel-Derived Zirconias ☆ Robert S. Pavlik Jr., Lisa C. Klein, and Ronald A. McCauley 1469
Microhardness of Sputter-Deposited Zirconia Films on Silicon Wafers ☆ Mahendra Pakala, Heather Walls, and Ray Y. Lin 1477
Mechanism of the Blue Up-Conversion in Tm^{3+}/Nd^{3+}-doped Calcium Aluminate Glasses ☆ Woon Jin Chung, Jae Ryoung Yoo, You Song Kim, and Jong Heo 1485
Transmission Electron Microscopy Investigation of the Oxidation of Hot Isostatically Pressed Silicon Nitride with and without Sintering Aids ☆ Colette O'Meara and Jörgen Sjöberg 1491
Phase Equilibria of the Bismuth Oxide–Calcium Oxide–Copper Oxide System in Oxygen at 1 atm ☆ Chi-Fo Tsang, James K. Meen, and Don Elthon 1501
Synthesis of Barium Hexaferrite by the Oxidation of a Metallic Barium–Iron Precursor ☆ Greg A. Ward and Kenneth H. Sandhage 1508
Optical Scattering Centers in Polycrystalline Nd:YAG Laser ☆ Akio Ikesue, Kunio Yoshida, Takahisa Tamamoto, and Isao Yamaga 1517
Sintering Behavior of Cadmium-Doped $Pb(Ni_{1/3}Nb_{2/3})O_3$–$PbZrO_3$–$PbTiO_3$ Ceramics ☆ Jeong-Ho Cho, In-Kil Park, Ho-Gi Kim, and Hoon-Taek Chung 1523
Application of Weakest-Link Fracture Statistics to Fiber-Reinforced Ceramic-Matrix Composites ☆ John C. McNulty and Frank W. Zok 1535
Effect of Oxide Devitrification on Oxidation Kinetics of SiC ☆ Linus U. J. T. Ogbuji 1544
Mullite Transformation Kinetics in P_2O_5-, TiO_2-, and B_2O_3-Doped Aluminosilicate Gels ☆ Seong-Hyeon Hong and Gary L. Messing 1551
Growth Rate of Diamond on Polycrystalline ⟨110⟩ Diamond Substrates from Carbon Disulfide in Hydrogen by Hot-Filament-Assisted Chemical Vapor Deposition ☆ Greg D. Barber and Walter A. Yarbrough 1560
Crystallographic Properties of Hydrothermal Barium Titanate Crystallites ☆ Er-Wei Shi, Chang-Tai Xia, Wei-Zhou Zhong, Bu-Guo Wang, and Chu-De Feng 1567

Communications

Thermal Evolution and Sintering Behavior of a 2:1 Mullite Gel ☆ Maria Isabel Osendi and Pilar Miranzo 1573
Reaction-Forming of Mullite Ceramics Using an Aqueous Milling Medium ☆ Suxing Wu, Helen M. Chan, and Martin P. Harmer 1579
Interaction between Alumina and Binary Glasses ☆ Yoshirou Kuromitsu, Hideaki Yoshida, Hiromichi Takebe, and Kenji Morinaga 1583
Unusual Immiscibility Structures in Tellurite Glasses ☆ Elena P. Kashchieva and Yanko B. Dimitriev 1588
Preparation and Characterization of Chemically Vapor Deposited ZrO_2 Coating on Nickel and Ceramic Fiber Substrates ☆ Mark A. Borst, Woo Y. Lee, Ying Zhang, and Peter K. Liaw 1591
Anisotropic Thermal Expansion of β-Ca_2SiO_4 Monoclinic Crystal ☆ Koichiro Fukuda, Iwao Maki, and Suketoshi Ito 1595
Particle Size Control of Barium Titanate Prepared from Barium Titanyl Oxalate ☆ Zee Hoon Park, Hyo Soon Shin, Byung Kyo Lee, and Sang Hee Cho 1599
Hydrothermal Preparation and Morphology Characteristics of $Y_3Fe_5O_{12}$ ☆ Yong S. Cho, Vernon L. Burdick, and Vasantha R. W. Amarakoon 1605
Strain-Dependent Electrical Conduction in the System NiO–CaO ☆ Yoshinobu Nakamura, Hiroshi Ogawa, Tetsuya Nakashima, Akira Kishimoto, and Hiroaki Yanagida 1609
Electron Spin Resonance Analysis of Lattice Defects of Polycrystalline Aluminum Nitride ☆ Seiji Nakahata, Kouichi Sogabe, Takahiro Matsuura, and Akira Yamakawa 1612
Colloidal Stability of Zirconia-Doped Yttria–Silica Binary Aqueous Suspensions ☆ Mehrdad Yasrebi, Mark E. Springgate, Douglas G. Nikolas, William Kemp, David H. Sturgis, and John M. McCarthy 1615
Cavitational Strain Contribution to Tensile Creep in Vitreous Bonded Ceramics ☆ František Lofaj, Akira Okada, and Hiroshi Kawamoto 1619
Combined Mode I–Mode II Fracture of 12-mol%-Ceria-Doped Tetragonal Zirconia Polycrystalline Ceramic ☆ Veena Tikare and Sung R. Choi 1624

July [7]

Topical Issue—Microstructure/Properties Relations of Advanced Materials

A Symposium in Honor of Professor Arthur H. Heuer's 60th Birthday ☆ Richard J. Brook 1631
Edge Stresses in Alumina/Zirconia Laminates ☆ Valter Sergo, Don M. Lipkin, Goffredo De Portu, and David R. Clarke 1633
Effect of Shear Stress on the Atomistic Structure of a Grain Boundary in Strontium Titanate ☆ Oliver Kienzle and Frank Ernst 1639
Dislocation Cores and Hardness Polarity of 4H-SiC ☆ Xian-Jie Ning, Nicolas Huvey, and Pirouz Pirouz 1645
Computer Simulations of Diffraction Effects due to Stacking Faults in β-SiC: I, Simulation Results ☆ Vijay V. Pujar and James D. Cawley 1653
Nanostructuring of Laser-Deposited Ti Films by Self-Limited Oxidation ☆ Andre A. Gorbunov, Wolfgang Pompe, Horst Eichler, Bryan Huey, and Dawn A. Bonnell 1663
Mechanisms of High-Temperature Creep of Fully Stabilized Zirconia Single Crystals as a Function of the Yttria Content ☆ Diego Gómez-García, Julián Martínez-Fernández, Arturo Domínguez-Rodríguez, and Jacques Castaing 1668
Structure and Mechanical Properties of Copper/Niobium Multilayers ☆ Terence E. Mitchell, Yong Cheng Lu, Alfred J. Griffin Jr., Michael Nastasi, and Harriet Kung 1673
Debonding in Multilayered Composites of Zirconia and $LaPO_4$ ☆ David B. Marshall, Peter E. D. Morgan, and Robert M. Housley 1677
Microstructure Evolution of ZrO_2–(Fe_2O_3, Al_2O_3) Materials Synthesized with Solution Precursors ☆ Pravin K. Narwankar, Fred F. Lange, and Carlos G. Levi 1684
Ferroelasticity of t'-Zirconia: I, High-Voltage Electron Microscopy Studies of the Microstructure in Polydomain Tetragonal Zirconia ☆ Dietmar Baither, Bernd Baufeld, Ulrich Messerschmidt, Andreas H. Foitzik, and Manfred Rühle 1691

Ferroelasticity of t''-Zirconia: II, *In situ* Straining in a High-Voltage Electron Microscope ☆ Bernd Baufeld, Dietmar Baither, Ulrich Messerschmidt, Martin Bartsch, Andreas H. Foitzik, and Manfred Rühle 1699
A Natural Ceramic/Polymer Layered Composite ☆ Howard L. Sobel and Wendell S. Williams 1706
Compression Test and Plastic Strain of α-Al_2O_3 Single Crystals ☆ Jean Pierre Rivière and Jacques Castaing 1711

Articles

Agglomeration during the Drying of Fine Silica Powders, Part II: The Role of Particle Solubility ☆ Alok Maskara and Douglas M. Smith 1715
Formation Kinetics of $MoSi_2$ and Mo_5Si_3 by the Reactive Diffusive Siliciding of Molybdenum ☆ William B. Hillig and Metin Usta 1723
Effect of Ordering-Induced Domain Boundaries on Low-Loss $Ba(Zn_{1/3}Ta_{2/3})O_3$–$BaZrO_3$ Perovskite Microwave Dielectrics ☆ Peter K. Davies, Jianzhu Tong, and Taki Negas 1727
Origin of the Positive Temperature Coefficient of Resistivity Anomaly in the ZnO–NiO System ☆ M. Drofenik, D. Lisjak, and I. Zajc 1741
Oxidation of Single Crystals of Hafnium Carbide in a Temperature Range of 600° to 900°C ☆ Shiro Shimada, Kenichiro Nakajima, and Michio Inagaki 1749
Feasibility of Using Cordierite Glass-Ceramics as Tile Glazes ☆ Anna Maria Ferrari, Luisa Barbieri, Cristina Leonelli, Tiziano Manfredini, Cristina Siligardi, and Anna Bonamartini Corradi 1757
Synthesis of $Ba_2NaNb_5O_{15}$ Powders and Thin Films Using Metal Alkoxides ☆ Toshinobu Yogo, Wataru Sakamoto, Tadayuki Isaji, Koichi Kikuta, and Shin-ichi Hirano 1767
Computer Simulation of Grain Growth and Ostwald Ripening in Alumina–Zirconia Two-Phase Composites ☆ Danan Fan and Long-Qing Chen 1773
Aqueous Processing of Sintered Reaction-Bonded Silicon Nitride: I, Dispersion Properties of Silicon Powder ☆ Vincent A. Hackley, Ungyu Paik, Bong-Ho Kim, and Subhas G. Malghan 1781
Thermally Induced Reversible Coagulation in Ceramic Powder–Polymer Liquid Suspensions ☆ Jeffrey A. Horn and Burton R. Patterson 1789
Reaction Sequence in the Preparation of $NiAl_2O_4$ Spinel–Mullite Composites by Sol–Gel ☆ Manuela Sales, Carla Valentín, and Javier Alarcón 1798
Minimizing Infiltration Times during Isothermal Chemical Vapor Infiltration with Methyltrichlorosilane ☆ Han-Chieh Chang, Theodore F. Morse, and Brian W. Sheldon 1805
High-Temperature Transverse Fracture Toughness of Nicalon-Fiber-Reinforced CAS-II Glass-Ceramic Matrix Composite ☆ Ramazan Kahraman, John F. Mandell, and Max C. Deibert 1812
Influence of the Oxide Precursors on the Reaction Sequencing and Kinetics in the Yttrium–Barium–Copper–Oxygen System ☆ Francesca G. Licci, Longmei Wang, and Tullo Besagni 1821
Fiber-Reinforced Ceramic-Matrix Composites with a Polysiloxane/Boron-Derived Matrix ☆ Daniel Suttor, Tobias Erny, Peter Greil, Holger Goedecke, and Tilman Haug 1831
Effect of Carbohydrate on the Rheological Parameters of Paste Extrusion ☆ Ying Chen, Adam Burbidge, and John Bridgwater 1841
Spherical Indentation and Fracture of Glass Plates ☆ Thomas J. Lardner, John E. Ritter, and Gao-Qiu Zhu 1851
Quantitative Characterization of Indentation Crack Path in a Cubic Zirconia–10 vol% Alumina Composite ☆ Parag Bhargava and Burton R. Patterson 1863

Communications

X-ray Photoemission and Energy Dispersive Spectroscopy of Hydroxyapatite-Coated Titanium ☆ James L. Drummond, Arnold D. Steinberg, and Alan R. Krauss 1868
In Situ Reacted Rare-Earth Hexaaluminate Interphases ☆ Markys G. Cain, Rebecca L. Cain, Michael H. Lewis, and John Gent 1873
Strengthening of Alumina by Formation of a Mullite/Glass Layer on the Surface ☆ Hyoun-Ee Kim, A. J. Moorhead, and Sang-Hak Kim 1877
Differential Negative Resistance and Piezoresistivity in Thin Semiconducting $BaTiO_3$ Ceramic Bars ☆ Makoto Kuwabara, Hirofumi Matsuda, and Koichi Hamamoto 1881
Effect of Porosity and Grain Size on the Microwave Dielectric Properties of Sintered Alumina ☆ Stuart J. Penn, Neil McN. Alford, Alan Templeton, Xiaoru Wang, Meishing Xu, Michael Reece, and Kevin Schrapel 1885
A Discernible Dielectric Aging Effect in the Undoped, N_2–H_2-Annealed Lead Magnesium Niobate–Lead Titanate Ceramic ☆ Yu Wang, Yan Cheong Chan, Zhi Lun Gui, Long Tu Li, and Andrew Straw 1889
Model Experiment on Thermodynamic Stability of Retained Intergranular Amorphous Films ☆ Harold D. Ackler and Yet-Ming Chiang 1893
Three-Dimensional Carbon/Silicon Carbide Composites Prepared by Chemical Vapor Infiltration ☆ Yongdong Xu and Litong Zhang 1897
Fast Li^+ Ion Conduction in Li_2O–Al_2O_3–TiO_2–SiO_2–P_2O_5 Glass-Ceramics ☆ Jie Fu 1901
Fracture Toughness Evaluation of Small Thin Ceramic Specimens ☆ Dov Sherman 1904
Dielectric Depression and Dispersion in Electrophoretically Fabricated $BaTiO_3$ Ceramic Films ☆ Kimihiro Yamashita, Motohide Matsuda, Yasushi Inda, Takao Umegaki, Masayuki Ito, and Toshinori Okura 1907
Characterization of the Cotunnite-Type Phases of Zirconia and Hafnia by Neutron Diffraction and Raman Spectroscopy ☆ Julian Haines, Jean Michel Léger, Steve Hull, Jean Pierre Petitet, Altair S. Pereira, Claudio A. Perottoni, and João A. H. da Jornada 1910

August [8]

Feature

Evaluated Material Properties for a Sintered α-Alumina ☆ Ronald G. Munro 1919

Articles

Constrained Densification of Alumina/Zirconia Hybrid Laminates, I: Experimental Observations of Processing Defects ☆ Peter Z. Cai, David J. Green, and Gary L. Messing 1929

Constrained Densification of Alumina/Zirconia Hybrid Laminates, II: Viscoelastic Stress Computation ☆ Peter Z. Cai, David J. Green, and Gary L. Messing 1940
Formation Mechanism of Hydrous-Zirconia Particles Produced by Hydrolysis of $ZrOCl_2$ Solutions ☆ Koji Matsui and Michiharu Ohgai 1949
High-Temperature Automotive Catalytic Nitrogen Oxide Reduction over Copper–Lanthanum–Alumina ☆ Masakuni Ozawa, Suguru Suzuki, and Hajime Toda 1957
Formation and Stability Regions of the High-Temperature Fluorite-Related Phase in the R_2O_3–Ta_2O_5 System (R = La, Nd, Sm, Ho, Er, and Yb) ☆ Yoshiyuki Yokogawa and Masahiro Yoshimura 1965
Kinetics and Formation of the 110 K Phase in the Bismuth–Lead–Strontium–Calcium–Copper–Oxygen System ☆ Wen Zhu, C. K. Kuo, and Patrick S. Nicholson 1975
Low-Temperature Sintering and Influence of the Process on the Dielectric Properties of $Ba(Zn_{1/3}Ta_{2/3})O_3$ ☆ Véronique Tolmer and Gilbert Desgardin 1981
Mechanical Properties of Dry-Pressed Ceramic Green Products: The Effect of the Binder ☆ Samir Baklouti, Thierry Chartier, and Jean François Baumard 1992
Atomistic Structure of Calcium Silicate Intergranular Films in Alumina Studied by Molecular Dynamics Simulations ☆ Slawomir Blonski and Stephen H. Garofalini 1997
Effect of Yttrium and Lanthanum on the Final-Stage Sintering Behavior of Ultrahigh-Purity Alumina ☆ Jianxin Fang, A. Mark Thompson, Martin P. Harmer, and Helen M. Chan 2005
Phase Relations in the Aluminum Carbide–Aluminum Nitride–Aluminum Oxide System ☆ Caian Qiu and Rudi Metselaar 2013
Microstructure and Flow Behavior of Fresh Cement Paste ☆ Wei-Guo Lei and Leslie J. Struble 2021
Tensile Stress Rupture of SiC_f/SiC_m Minicomposites with Carbon and Boron Nitride Interphases at Elevated Temperatures in Air ☆ Gregory N. Morscher 2029
Predicted Effects of Interfacial Roughness on the Behavior of Selected Ceramic Composites ☆ Triplicane A. Parthasarathy and Ronald J. Kerans 2043
Transformation Toughening in Sol–Gel-Derived Alumina–Zirconia Composites ☆ Vladimir V. Srdić and Ljiljana Radonjić 2056
Micromechanics of Failure Waves in Glass: I, Experiments ☆ Horacio D. Espinosa, Yueping Xu, and Natchater S. Brar 2061
Micromechanics of Failure Waves in Glass: II, Modeling ☆ Horacio D. Espinosa, Yueping Xu, and Natchater S. Brar 2074
Electrical-Impulse-Induced Fracture of Zinc Oxide Varistor Ceramics ☆ Agnes Vojta and David R. Clarke 2086
Elastic Response of Thermal Spray Deposits under Indentation Tests ☆ Sang-Ha Leigh, Chung-Kwei Lin, and Christopher C. Berndt 2093
Thermal Conductivity of Packed Beds of Refractory Particles: Experimental Results ☆ Irina Fedina, Efim Litovsky, Michael Shapiro, and Arthur Shavit 2100
Phase Transitions and Transient Liquid-Phase Sintering in Calcium-Substituted Lanthanum Chromite ☆ Larry A. Chick, Jun Liu, Jeffry W. Stevenson, Timothy R. Armstrong, David E. McCready, Gary D. Maupin, Gregory W. Coffey, and Chris A. Coyle 2109
Evidence for a Phase Transition of β-Gallium Oxide at Very Low Oxygen Pressures ☆ Maximilian Fleischer, Leo Höllbauer, Eberhard Born, and Hans Meixner 2121
Microstructure and High-Temperature Mechanical Behavior of Alumina/Alumina–Yttria-Stabilized Tetragonal Zirconia Multilayer Composites ☆ Manuel Jiménez-Melendo, Carolina Clauss, Arturo Domínguez-Rodríguez, Antonio J. Sánchez-Herencia, and José S. Moya 2126
Flow Characteristics of a Vertical Spinning Disk, Low-Pressure Vapor Deposition Apparatus ☆ Rui-Chao Zhang, John D. Duke, Ren Xu, and Anil V. Virkar 2131
Thermal Degradation of Fiber Coatings in Mullite-Fiber-Reinforced Mullite Composites ☆ Martin Schmücker, Hartmut Schneider, Krishan K. Chawla, Zheng R. Xu, and Jung-Soo Ha 2136
Shrinkage-Free, Alumina–Glass Dental Composites via Aluminum Oxidation ☆ Sang-Jin Lee, Waltraud M. Kriven, and Hyun-Min Kim 2141

Communications

Influence of Phosphorus, Barium, and Lead Compositional Variation on the Chemical Durability of a Multicomponent Glass System ☆ Wen Luo, Andrew C. Buechele, and Sabrina S. Fu 2148
High-Temperature Hall Measurements on $BaSnO_3$ Ceramics ☆ Bernhard Ostrick, Maximilian Fleischer, and Hans Meixner 2153
Glycothermal Reaction of Rare-Earth Acetate and Iron Acetylacetonate: Formation of Hexagonal $REFeO_3$ ☆ Masashi Inoue, Toshihiro Nishikawa, Tomohiro Nakamura, and Tomoyuki Inui 2157
A New Model for the Pollucite Thermal Expansion Mechanism ☆ Hidehiko Kobayashi, Ikuo Yanase, and Takashi Mitamura 2161
Effect of Green Density on the Subsequent Densification and Grain Growth of Ultrafine SnO_2 Powder during Isochronal Sintering ☆ Jae-Pyoung Ahn, Jong-Ku Park, and Moo-Young Huh 2165
Fabrication and Mechanical Properties of Continuously Graded $MoSi_2$–$ZrO_2(2Y)$ Materials Using Wet-Molding ☆ Kenji Arata, Nobutaka Takeuchi, Masaru Yoshinaka, Ken Hirota, and Osamu Yamaguchi 2168

September [9]

Feature

Thermodynamics and Transport of Ionic and Electronic Defects in Crystalline Oxides ☆ Martijn H. R. Lankhorst, Henny J. M. Bouwmeester, and Henk Verweij 2175

Articles

Structure Evolution of Highly Crystallized $BaWO_4$ Film Prepared by an Electrochemical Method at Room Temperature ☆ Woo-Seok Cho and Masahiro Yoshimura 2199
Mechanical Damping Arising from Dislocation Motion in Sapphire and Ruby Crystals ☆ Giuseppe Pezzotti and Ken'ichi Ota 2205
Nitridation Effect on Properties of Stannous-Lead Phosphate Glasses ☆ Hsiwen Yung, P. Y. Shih, H. S. Liu, and T. S. Chin 2213
Tensile Creep of Alumina–Silicon Carbide "Nanocomposites" ☆ A. Mark Thompson, Helen M. Chan, and Martin P. Harmer 2221
Wetting Behavior between Fayalite-Type Slags and Solid Magnesia ☆ Hiroyuki Fukuyama, Jeffrey R. Donald, and James M. Toguri 2229

High-Temperature Raman Spectra and Thermal Expansion of Wollastonite ☆ Varghese Swamy, Leonid S. Dubrovinsky, and Faramarz Tutti 2237
Synthesis of Novel Niobium Aluminide-Based Composites ☆ Daniel E. García, Silvia Schicker, Jörn Bruhn, Rolf Janssen, and Nils Claussen 2248
Crack-Growth Resistance-Curve Behavior in Silicon Carbide: Small versus Long Cracks ☆ C. J. Gilbert, J. J. Cao, L. C. De Jonghe, and R. O. Ritchie 2253
Degradation of Magnesite–Chrome Refractory Brick by Hydration ☆ Jorge A. Malarría and Ricardo Tinivella 2262
Microstructure Refinement of Sintered Alumina by a Two-Step Sintering Technique ☆ Frank J. T. Lin, Lutgard C. De Jonghe, and Mohamed N. Rahaman 2269
Phase Stability and Electrical Conductivity in $Gd_2Ti_2O_7$–$Gd_2Mo_2O_7$ Solid Solutions ☆ Ofer Porat, Catherine Heremans, and Harry L. Tuller 2278
Thermal Behavior of Silver in Ion-Exchanged Soda–Lime Glasses ☆ Paul W. Wang, Lipeng Zhang, Ying Tao, and Chengyu Wang 2285
Reaction Processing of Al_2O_3 Composites Containing Iron and Iron Aluminides ☆ Silvia Schicker, Daniel E. Garcia, Jörn Bruhn, Rolf Janssen, and Nils Claussen 2294
Grain-Boundary Defect Chemistry of Acceptor-Doped Titanates: Inversion Layer and Low-Field Conduction ☆ Markus Vollmann, Rainer Hagenbeck, and Rainer Waser 2301
Colloidal Processing of Silicon Nitride with Poly(acrylic acid): I, Adsorption and Electrostatic Interactions ☆ Vincent A. Hackley 2315
Carbon-Coated-Glass-Fiber-Reinforced Cement Composites: I, Fiber Pushout and Interfacial Properties ☆ Chao M. Huang, Dong Zhu, Xiang-Dong Cong, Waltraud M. Kriven, Roland R. Loh, and Jianzhong Huang 2326
Synthesis of Silicon Carbide Thin Films with Polycarbosilane (PCS) ☆ Paolo Colombo, Thomas E. Paulson, and Carlo G. Pantano 2333
Viscous Slip along Grain Boundaries in Chlorine-Doped Silicon Nitride ☆ Giuseppe Pezzotti, Ken'ichi Ota, and Hans-Joachim Kleebe 2341
Suppression of Viscous Grain-Boundary Sliding in a Dilute SiAlON Ceramic ☆ Giuseppe Pezzotti, Hans-Joachim Kleebe, Ken'ichi Ota, and Kazuya Yabuta 2349
Ferroelectric Polarization Fatigue in PZT-Based RAINBOWs and Bulk Ceramics ☆ David E. Dausch 2355
Hardening in Creep of Alumina by Zirconium Segregation at the Grain Boundary ☆ Fumihiro Wakai, Takayuki Nagano, and Takeo Iga 2361
Role of Microstructure in Hertzian Contact Damage in Silicon Nitride: I, Mechanical Characterization ☆ Seung Kun Lee, Sataporn Wuttiphan, and Brian R. Lawn 2367
Acoustic Emission Studies of Alumina–13% Titania Free-Standing Forms during Four-Point Bend Tests ☆ Chung-Kwei Lin, Christopher C. Berndt, Sang-Ha Leigh, and Kenji Murakami 2382
Microstructural Development during Sintering of Lithium Fluoride ☆ Jeffrey W. Bullard and Alan W. Searcy 2395
Effect of Densification Mismatch on Camber Development during Cofiring of Nickel-Based Multilayer Ceramic Capacitors ☆ Jau-Ho Jean, Chia-Ruey Chang, and Zhien-Chi Chen 2401

Communications

Strong and Tough Hi-Nicalon-Fiber-Reinforced Celsian-Matrix Composites ☆ Narottam P. Bansal 2407
Sequence of Phase Formation in Chemically Derived Ferroelectric Lead Zirconate Titanate $Pb(Zr_{0.4}Ti_{0.6})O_3$ Thin Films ☆ Yimin Liu and Pradeep P. Phulé 2410
In Situ Observation of Phase Separation of a Barium Borate Melt in a Stable Immiscibility Region under Microgravity ☆ Satoru Inoue, Akio Makishima, Hiroyuki Inoue, Kohei Soga, Tomoya Konishi, Tomoyoshi Asano, Yuu Ishii, and Masato Koyama 2413
Preparation of Al_2O_3–AlN–Ni Composites ☆ Wei-Hsing Tuan and Wen-Bing Chou 2418
A Strong and Damage-Tolerant Oxide Laminate ☆ Dong-Hau Kuo and Waltraud M. Kriven 2421
Vapor-Phase Synthesis of Nanosize Aluminum Nitride Particles Using a Two-Stage Transferred Arc Reactor ☆ Francesco J. Moura and Richard J. Munz 2425
Formation of Metastable Fluorite Phase by Rapid Quenching of Melts in the Y_2O_3–Ta_2O_5 System ☆ Osamu Yokota, Masatomo Yashima, Naoki Yamamoto, and Masahiro Yoshimura 2429
Nucleation and Growth Characteristics of Cavities during the Early Stages of Tensile Creep Deformation in a Superplastic Zirconia–20 wt% Alumina Composite ☆ David M. Owen, Atul H. Chokshi, and Steven R. Nutt 2433
Alkoxy-Derived $KTiOPO_4$ (KTP) Fibers ☆ Ken-ichi Noda, Wataru Sakamoto, Toshinobu Yogo, and Shin-ichi Hirano 2437
Synthesis of $LaMeO_3$ (Me = Cr, Mn, Fe, Co) Perovskite Oxides from Aqueous Solutions ☆ Takeshi Yao, Akira Ariyoshi, and Takashi Inui 2441
Stress Intensity Factor for a Peripherally Cracked Spherical Cap ☆ Gao-Qiu Zhu, John E. Ritter, Karl Jakus, and Sandeepan Bhattacharya 2445
Zeolites Synthesized from Class F Fly Ash and Sodium Aluminate Slurry ☆ Michael W. Grutzeck and Darryl D. Siemer 2449
Damage to the Pore Structure of Hardened Portland Cement Paste by Mercury Intrusion ☆ Rudolph A. Olson, Christopher M. Neubauer, and Hamlin M. Jennings 2454
Formation of AlN-Polytypoid Phases during α-SiAlON Decomposition ☆ Rupeng Zhao, Steven P. Swenser, and Yi-Bing Cheng 2459
Preparation of Crystallized $Sr_{1-x}Ca_xMoO_4$ Solid-Solution Films by an Electrochemical Method at Room Temperature and Their Luminescence ☆ Masahiro Yoshimura, Mitsuhiro Ohmura, Woo-Seok Cho, Masatomo Yashima, and Masato Kakihana 2464

Corrections

Model Experiment on Thermodynamic Stability of Retained Intergranular Amorphous Films ☆ Harold D. Ackler and Yet-Ming Chiang 2467
Nanostructuring of Laser-Deposited Ti Films by Self-Limited Oxidation ☆ Andre A. Gorbunov, Wolfgang Pompe, Horst Eichler, Bryan Huey, and Dawn A. Bonnell 2468

October [10]

Feature

Fibrous Monolithic Ceramics ☆ Desiderio Kovar, Bruce H. King, Rodney W. Trice, and John W. Halloran 2471

Articles

Phase Formation in the System $CaO–SeO_2–H_2O$ ☆ John Q. Dumm and Paul W. Brown 2488
Effect of Hydrogen Fluoride Gas Treatment on High-Strength Fluoride-Fiber Fabrication ☆ Yoshiki Nishida, Yasutake Ohishi, Kazuo Fujiura, Terutoshi Kanamori, and Shoichi Sudo 2495
Reaction Pathways in the Synthesis of Photorefractive γ-$Bi_{12}MO_{20}$ (M = Si, Ge, or Ti) ☆ Senlin Fu and Hiroyuki Ozoe 2501
$PbTiO_3–PbO–SiO_2$ Glass-Ceramic Thin Film by a Sol–Gel Process ☆ Kunio Saegusa 2510
New Concept for Simulating Particle Packing in Colloidal Forming Processes ☆ Chu-Wan Hong 2517
Local Chemical Bonding around Rare-Earth Ions in α- and β-Si_3N_4 ☆ Tetsuo Nakayasu, Tetsuo Yamada, Isao Tanaka, Hirohiko Adachi, and Seishi Goto 2525
Patterning of Lithium Niobate Thin Films Derived from Aqueous Solution ☆ Satomi Ono and Shin-ichi Hirano 2533
Formation of Mullite from Filled Siloxanes ☆ Daniel Suttor, Hans-Joachim Kleebe, and Günter Ziegler 2541
Defect Chemistry of Donor-Doped and Undoped Strontium Titanate Ceramics between 1000° and 1400°C ☆ Ralf Moos and Karl Heinz Härdtl 2549
Synthesis, Densification, and Conductivity Characteristics of BICUVOX Oxygen-Ion-Conducting Ceramics ☆ Steven P. Simner, Donaji Suarez-Sandoval, John D. Mackenzie, and Bruce Dunn 2563
Mechanical Behavior at 20° and 1200°C of Nicalon-Silicon-Carbide-Fiber-Reinforced Alumina-Matrix Composites ☆ Jose Antonio Celemín, Jose Ygnacio Pastor, Javier LLorca, and Manuel Elices 2569
Structure and Properties of Silica Derived from Silicon Alkoxide Reacted with Tartaric Acid ☆ Hiroyuki Izutsu, Fujio Mizukami, Yoshimichi Kiyozumi, and Kazuyuki Maeda 2581
Shift of the Curie Point of Barium Titanate Ceramics with Sintering Temperature ☆ Makoto Kuwabara, Hirofumi Matsuda, Natsuko Kurata, and Eiji Matsuyama 2590
A Processable Mullite Precursor Prepared by Reacting Silica and Aluminum Hydroxide with Triethanolamine in Ethylene Glycol: Structural Evolution on Pyrolysis ☆ Pallavi Kansal, Richard M. Laine, and Florence Babonneau 2597
Microstructure and Phase Stability of Yttria-Doped Tetragonal Zirconia Polycrystals Heat Treated in Nitrogen Atmosphere ☆ Tai-Joo Chung, Huesup Song, Gyeung-Ho Kim, and Doh-Yeon Kim 2607
Oriented Lead Titanate Film Growth at Lower Temperatures by the Sol–Gel Method on Particle-Seeded Substrates ☆ Jooho Moon, Jeffrey A. Kerchner, James LeBleu, Augusto A. Morrone, and James H. Adair 2613
β-SiAlON–Silicon Nitride Multilayered Composites ☆ Yasuhiro Shigegaki, Manuel E. Brito, Kiyoshi Hirao, Motohiro Toriyama, and Shuzo Kanzaki 2624
Thermodynamic Assessment of the Bismuth–Calcium–Oxygen Oxide System ☆ Bengt Hallstedt, Daniel Risold, and Ludwig J. Gauckler 2629
Mechanism of Biaxial Alignment of Oxide Thin Films during Ion-Beam-Assisted Deposition ☆ Kevin G. Ressler, Neville Sonnenberg, and Michael J. Cima 2637
Particle Growth during Calcination of Polycation Oxides Synthesized by the Polymeric Precursors Method ☆ Edson R. Leite, Marcos A. L. Nobre, Marinalva Cerqueira, Elson Longo, and Jose Arana Varela 2649
Densification and Crystallization of Lead Titanate Aerogels ☆ Peer Löbmann, Walther Glaubitt, and Jochen Fricke 2658
Role of Steric Hindrance in the Performance of Superplasticizers for Concrete ☆ Kazuhiro Yoshioka, Etsuo Sakai, Masaki Daimon, and Ayao Kitahara 2667
Optical Spectra of Synthetic Spinels in the System $MgAl_2O_4–MgCr_2O_4$ ☆ Ko Ikeda, Yoshinori Nakamura, Kiyoshi Masumoto, and Hiromi Shima 2672

Communications

Conversion of Diaspore to Corundum: A New α-Alumina Transformation Sequence ☆ Altaf H. Carim, Gregory S. Rohrer, Neal R. Dando, Shih-Ying Tzeng, Cathy L. Rohrer, and Anthony J. Perrotta 2677
R-Curve Behavior of Silicon Nitride–Titanium Nitride Composites ☆ Heon-Jin Choi, Kyeong-Sik Cho, June-Gunn Lee, and Young-Wook Kim 2681
Thermodynamic Analysis of the Cubic–Tetragonal Phase Equilibria in the System $ZrO_2–YO_{1.5}$ ☆ Junji Katamura and Taketo Sakuma 2685
Relation between Mechanical Twinning and Cracking in Stoichiometric Lithium Niobate Single Crystals ☆ Bong Mo Park, Kenji Kitamura, Yasunori Furukawa, and Yangyang Ji 2689
Tetragonal-to-Cubic Structural Phase Transition in Pollucite by Low-Temperature X-ray Powder Diffraction ☆ Ikuo Yanase, Hidehiko Kobayashi, Yoshio Shibasaki, and Takashi Mitamura 2693
Preparation and Faraday Effect of Fluoroaluminate Glasses Containing Divalent Europium Ions ☆ Jianrong Qiu, Katsuhisa Tanaka, and Kazuyuki Hirao 2696
Strength vs Stressing Rate and Indentation Crack Growth Behavior of Indium(III) Phosphide ☆ Grady S. White and Linda M. Braun 2699
Sol–Gel Synthesis of Perovskite-Type Lanthanum Manganite Thin Films and Fine Powders Using Metal Acetylacetonate and Poly(vinyl alcohol) ☆ Youichi Shimizu and Tomohiko Murata 2702
Effect of Porosity and Microstructure on the Strength of Si_3N_4: Designed Microstructure for High Strength, High Thermal Shock Resistance, and Facile Machining ☆ Chihiro Kawai and Akira Yamakawa 2705
Metal Propionate Synthesis of Magnetoresistive $La_{1-x}(Ca,Sr)_xMnO_3$ Thin Films ☆ Ulrich Hasenkox, Carsten Mitze, and Rainer Waser 2709
Preparation of Lead Zirconate by Homogeneous Precipitation and Calcination ☆ Ersin Emre Oren, Ercan Taspinar, and A. Cüneyt Tas 2714
Synthesis and Properties of Lead Magnesium Niobate Zirconate Relaxor Materials ☆ Arian Nijmeijer, Henk Kruidhof, and Detlev Hennings 2717
Crack Initiation by Indentation Fatigue in Lead Alkali and Soda–Lime Glass ☆ Rajat Banerjee and Bijit Kumar Sarkar 2722
Forming Textured Microstructures via the Gelcasting Technique ☆ Michael H. Zimmerman, K. T. Faber, and Edwin R. Fuller, Jr. 2725

Effects of Temperature, Environment, and Orientation on the Fracture Toughness of Single-Crystal YAG ☆ Tai-Il Mah and Triplicane A. Parthasarathy 2730
Translucent Tin Dioxide Ceramics Obtained by Natural Sintering ☆ Douglas Gouvea, Agnès Smith, David Stanley Smith, Jean Pierre Bonnet, and Jose Arena Varela 2735
Microstructural Evolution of Gas-Pressure-Sintered Si_3N_4 with Yb_2O_3 as a Sintering Aid ☆ Won-Ho Lee, Hyoun-Ee Kim, and Seong-Jai Cho 2737
Validity of Using Average Diameter for Determination of Tensile Strength and Weibull Modulus of Ceramic Filaments ☆ M. Dennis Petry, Tai-Il Mah, and Ronald J. Kerans 2741
Structures, Phase Transformations, and Dielectric Properties of Pyrochlores Containing Bismuth ☆ Xiaoli Wang, Hong Wang, and Xi Yao 2745
Formation and Sintering of TiO_2 (Anatase) Solid Solution in the System TiO_2–SiO_2 ☆ Masaru Yoshinaka, Ken Hirota, and Osamu Yamaguchi 2749
Electrolytic Treatment of Continuous CVD Silicon Carbide Fibers ☆ Xinchun Chang and Yijun Du 2754

November [11]

Articles

Fatigue and Static Crack Propagation in Yttria-Stabilized Tetragonal Zirconia Polycrystals: Crack Growth Micromechanisms and Precracking Effects ☆ Jorge Alcalá and Marc Anglada 2759
Interlamellar Residual Stresses in Single Grains of NiO–ZrO_2(cubic) Directionally Solidified Eutectics ☆ Elizabeth C. Dickey, Vinayak P. Dravid, and Camden R. Hubbard 2773
Effects of Copper Coating on the Crystalline Structure of Fine Barium Titanate Particles ☆ Xinghua Liu, Wan Y. Shih, and Wei-Heng Shih 2781
Fracture of an Aluminosilicate Fiberboard ☆ Blain H. Olbert and Steven R. Schenck 2789
Sea Salt Hot Corrosion and Strength of an Yttria-Containing Silicon Nitride ☆ Dennis S. Fox, Michael D. Cuy, and Thomas E. Strangman 2798
Hydroxyapatite/Hydroxyapatite-Whisker Composites without Sintering Additives: Mechanical Properties and Microstructural Evolution ☆ Wojciech Suchanek, Masatomo Yashima, Masato Kakihana, and Masahiro Yoshimura 2805
Grain Boundaries in Titania-Doped α-Alumina with Anisotropic Microstructure ☆ Anteneh Kebbede, Gary L. Messing, and Altaf H. Carim 2814
Monolayer-Mediated Deposition of Tantalum(V) Oxide Thin Film Structures from Solution Precursors ☆ Paul G. Clem, Noo-Li Jeon, Ralph G. Nuzzo, and David A. Payne 2821
In-Situ Transmission Electron Microscopy Crystallization Studies of Sol–Gel-Derived Barium Titanate Thin Films ☆ Maria C. Gust, Neal D. Evans, Leslie A. Momoda, and Martha L. Mecartney 2828
Properties and Microstructure of Molybdenum Disilicide–β′-SiAlON Particulate Ceramic Composites ☆ Chao M. Huang, Chao Y. Yuh, Mohammad Farooque, Dong Zhu, Youren Xu, and Waltraud M. Kriven 2837
Size Effects in Barium Titanate Particles and Clusters ☆ Xiaoping Li and Wei-Heng Shih 2844
Mechanism and Kinetics of the Carbothermal Nitridation Synthesis of α-Silicon Nitride ☆ Alan W. Weimer, Glenn A. Eisman, David W. Susnitzky, Donald R. Beaman, and Jeffrey W. McCoy 2853
Phase Separation of Alkoxy-derived (Ti,Sn)O_2 Oriented Thin Films ☆ Shuichi Arakawa, Kenji Mogi, Ko-ichi Kikuta, Toshinobu Yogo, Shin-ichi Hirano, Yoji Seki, and Mitsutoshi Kawamoto 2864
Synthesis of Highly Oriented Lithium Niobate Thin Film from Neutralized Aqueous Precursor Solution ☆ Satomi Ono and Shin-ichi Hirano 2869
Development of an Equivalent Circuit Model for Cement Pastes from Microstructural Considerations ☆ Donald E. Macphee, Derek C. Sinclair, and Sarah L. Cormack 2876
Effect of La/K A-site Substitutions on the Ordering of $Ba(Zn_{1/3}Ta_{2/3})O_3$ ☆ Cheng-Chang Lee, Chen-Chia Chou, and Dah-Shyang Tsai 2885
Initial Coarsening and Microstructural Evolution of Fast-Fired and MgO-Doped Al_2O_3 ☆ Frank J. T. Lin, Lutgard C. De Jonghe, and Mohamed N. Rahaman 2891
Mechanical Properties of Oxidation-Resistant SiC/C Compositionally Graded Graphite Materials ☆ Junichi Nakano, Kimio Fujii, and Reiji Yamada 2897
Structure and Nonlinear Optical Properties of Lanthanide Borate Glasses ☆ Kentaro Terashima, Suguru Tamura, Sea-Hoon Kim, and Toshinobu Yoko 2903
Wetting and Melt Extraction Characteristics of ZrO_2–Al_2O_3 Based Materials ☆ Mehdi Allahverdi, Robin A. L. Drew, and John O. Strom-Olsen 2910
Internal Friction/Attenuation in a β-Spodumene Glass-Ceramic ☆ Jeffrey A. Lee and Reid F. Cooper 2917

Communications

Forming Single-Phase Laminates via the Gelcasting Technique ☆ Donald M. Baskin, Michael H. Zimmerman, K. T. Faber, and Edwin R. Fuller, Jr. 2929
Domain Growth in $Pb(Mg_{1/3}Ta_{2/3})O_3$ Perovskite Relaxor Ferroelectric Oxides ☆ Mehmet A. Akbas and Peter K. Davies 2933
Microwave Characteristics of $(Pb,Ca)(Fe,Nb,Sn)O_3$ Dielectric Materials ☆ Sergey Kucheiko, Ji-Won Choi, Hyun-Jai Kim, Seok-Jin Yoon, and Hyung-Jin Jung 2937
Detection of Minor Crystalline Phases in Alumina Ceramics Using Synchrotron Radiation Diffraction ☆ Bruno A. Latella and Brian H. O'Connor 2941
Evaluation of Microstructure Characteristics of Lithium Niobate Single-Crystal Fiber with Magnesium-Ion-Indiffused Cladding ☆ Wenxiu Que, Siakpiang Lim, Liangying Zhang, and Xi Yao 2945
Manufacturing Nano-Diphasic Materials from Natural Dolomite: *In Situ* Observation of Nanophase Formation Behavior ☆ Yoshikazu Suzuki, Peter E. D. Morgan, Tohru Sekino, and Koichi Niihara 2949
Processing and Electromechanical Properties of $(Bi_{0.5}Na_{0.5})_{(1-1.5x)}La_xTiO_3$ Ceramics ☆ Aree Herabut and Ahmad Safari 2954
Comment on "Mesostructure of Calcium Silicate Hydrate (C-S-H) Gels in Portland Cement Paste: Short-Range Ordering, Nanocrystallinity, and Local Compositional Order" ☆ Susanta Chatterji 2959

Reply to "Comment on 'Mesostructure of Calcium Silicate Hydrate (C-S-H) Gels in Portland Cement Paste: Short-Range Ordering, Nanocrystallinity, and Local Compositional Order' " ☆ Zhengkui Xu and Dwight Viehland 2961

Correction

Deposition of Oxide Coatings on Fiber Cloths by Electrostatic Attraction ☆ Michael K. Cinibulk 2963

December [12]

Feature

Synthesis of ZrO_2 and Y_2O_3-Doped ZrO_2 Thin Films Using Self-Assembled Monolayers ☆ Monika Agarwal, Mark R. De Guire, and Arthur H. Heuer 2967

Articles

Viscous Sintering and Mechanical Properties of 3Y-TZP-Reinforced LAS Glass-Ceramic Composites ☆ Se Y. Choi and Joon M. Ahn 2982

Control of Interfacial Properties through Fiber Coatings: Monazite Coatings in Oxide–Oxide Composites ☆ Dong-Hau Kuo, Waltraud M. Kriven, and Thomas J. Mackin 2987

Preparation, Microstructure, and Mechanical Properties of Silicon Carbide–Dysprosia Composites ☆ Shin Kim and Waltraud M. Kriven 2997

Oxygen Tracer Diffusion in Polycrystalline Calcium-Doped Lanthanum Chromites ☆ Isamu Yasuda, Kei Ogasawara, and Masakazu Hishinuma 3009

Pressureless Sintering of Titanium Diboride with Nickel, Nickel Boride, and Iron Additives ☆ Mari-Ann Einarsrud, Eirik Hagen, Gunnar Pettersen, and Tor Grande 3013

Structural Studies of Jennite and 1.4 nm Tobermorite: Disordered Layering along the [100] of Jennite ☆ Dwight Viehland, Lijian J. Yuan, Z. Xu, Xian-Dong Cong, and R. James Kirkpatrick 3021

Delamination Resistance of Two Hybrid Ceramic-Composite Laminates ☆ Willard A. Cutler, Frank W. Zok, Fred F. Lange, and Panos G. Charalambides 3029

Mixture Experiment Techniques for Reducing the Number of Components Applied for Modeling Waste Glass Sodium Release ☆ Greg Piepel and Trish Redgate 3038

Formation and Stability of β-Quartz Solid-Solution Phase in the Li-Si-Al-O-N System ☆ Astrid Nordmann and Yi-Bing Cheng 3045

Thermodynamic Assessment of the Silver–Oxygen System ☆ Jérôme Assal, Bengt Hallstedt, and Ludwig J. Gauckler 3054

Quantitative Microscopy of β-Si_3N_4 Ceramics ☆ Håkan Björklund, Jonas Wasén, and Lena K. L. Falk 3061

Mechanical Behavior of $MoSi_2$ Reinforced–Si_3N_4 Matrix Composites ☆ John J. Petrovic, Maria I. Pena, Ivar E. Reimanis, Michael S. Sandlin, Samuel D. Conzone, H. Harriet Kung, and Darryl P. Butt 3070

Nucleation and Crystallization of a Lithium Aluminosilicate Glass ☆ Luisa Barbieri, Cristina Leonelli, Tiziano Manfredini, Cristina Siligardi, Anna Bonamartini Corradi, Piercarlo Mustarelli, and Corrado Tomasi 3077

Cofiring Kinetics and Mechanisms of an Ag-Metallized Ceramic-Filled Glass Electronic Package ☆ Jau-Ho Jean and Chia-Ruey Chang 3084

Effect of Direct-Current Biasing on the Dielectric Properties of Barium Strontium Titanate ☆ Jih-Wei Liou and Bi-Shiou Chiou 3093

An Analysis of Nucleation-Rate Type of Curves in Glass as Determined by Differential Thermal Analysis ☆ Chandra S. Ray and Delbert E. Day 3100

Synthesis of Celsian ($BaAl_2Si_2O_8$) from Solid Ba–Al–Al_2O_3–SiO_2 Precursors: I, XRD and SEM/EDX Analyses of Phase Evolution ☆ Seyed M. Allameh and Kenneth H. Sandhage 3109

Leakage and Reliability Characteristics of Lead Zirconate Titanate Thin-Film Capacitors ☆ Husam N. Al-Shareef and Duane Dimos 3127

Crystalline Copper Phosphates: Synthesis and Thermal Stability ☆ Carlos E. Bamberger, E. D. Specht, and Lawrence M. Anovitz 3133

GeO_2-Based Sol–Gel Films ☆ Giovanna Brusatin, Massimo Guglielmi, and Alessandro Martucci 3139

Solid Solubility of Neodymium in $BaCeO_3$ ☆ Darko Makovec, Zoran Samardžija, and Drago Kolar 3145

Application of the Carreau Model to Tape-Casting Fluid Mechanics ☆ Guillermo Terrones, Peter A. Smith, Timothy R. Armstrong, and Tamara J. Soltesz 3151

Nanocrystalline Titanium Oxide Electrodes for Photovoltaic Applications ☆ Christophe J. Barbé, Francine Arendse, Pascal Comte, Marie Jirousek, Frank Lenzmann, Valery Shklover, and Michael Grätzel 3157

Effect of Substrate Orientation, Roughness, and Film Deposition Mode on the Tensile Strength and Toughness of Niobium–Sapphire Interfaces ☆ Vijay Gupta, Jianxin Wu, and Alexander N. Pronin 3172

Ceria–Yttria-Stabilized Zirconia Composite Ceramic Systems for Applications as Low-Temperature Electrolytes ☆ Geoffrey A. Tompsett, Nigel M. Sammes, and Osamu Yamamoto 3181

Low-Temperature Electrochemical Synthesis of ZrO_2 Films on Zirconium Substrates: Deposition of Thick Amorphous Films and *in situ* Crystallization on Zirconium Anode ☆ Takayuki Tsukada, Sridhar Venigalla, and James H. Adair 3187

Formation and Structural Characterization of 1:1 Ordered Perovskites in the $Ba(Zn_{1/3}Ta_{2/3})O_3$–$BaZrO_3$ System ☆ Liang Chai and Peter K. Davies 3193

Communications

Ab-initio Calculation of Yttrium Substitutional Impurities in α-Al_2O_3 ☆ Wai-Yim Ching, Yong-Nain Xu, and Manfred Rühle 3199

Novel Technology for X-ray Mapping of Ceramic Microstructures ☆ John J. Friel and Victor A. Greenhut 3205

Effect of Heat Treatment on Rapidly Quenched AgI-Based Silver Orthoborate Glasses Containing Large Amounts of AgI ☆ Nobuyuki Itakura, Masahiro Tatsumisago, and Tsutomu Minami 3209

Formation Process of Super-Water-Repellent Al_2O_3 Coating Films with High Transparency by the Sol–Gel Method ☆ Kiyoharu Tadanaga, Noriko Katata, and Tsutomu Minami 3213

Estimation of Phase Stability in $Pb(Mg_{1/3}Nb_{2/3})O_3$ and $Pb(Zn_{1/3}Nb_{2/3})O_3$ Using the Bond Valence Approach ☆ Naoki Wakiya, Kazuo Shinozaki, Nobuyasu Mizutani, and Nobuo Ishizawa 3217

Characterization and Sintering of Reactive Cerium(IV) Oxide Powders Prepared by the Hydrazine Method ☆ Singo Nakane, Toshiaki Tachi, Masaru Yoshinaka, Ken Hirota, and Osamu Yamaguchi 3221
Mullite Coatings on SiC and C/C–Si–SiC Substrates Characterized by Infrared Spectroscopy ☆ Claus H. Rüscher, Holger Fritze, Günter Borchardt, Thomas Witke, and Bernd Schultrich 3225
Phase Stability of Graphitelike BC_4N up to 2100 K and 7 GPa ☆ Vladimir L. Solozhenko, Vladimir Z. Turkevich, and Tadao Sato 3229
Hydrothermal Corrosion of Alumina Ceramics ☆ Kohei Oda and Tetsuo Yoshio 3233
Investigation of High-Alumina Spinel: Effect of LiF and $CaCO_3$ Addition ☆ Jow-Lay Huang, Si-Yau Sun, and Yung-Chao Ko 3237
Simplified Equation for Evaluating the Influence of Surface Residual Stresses on the Toughness of Zirconia Ceramics ☆ Goffredo de Portu and Sabrina Conoci 3242
Processing of a Silicon-Carbide-Whisker-Reinforced Glass-Ceramic Composite by Microwave Heating ☆ Lifu Chen, Cristina Leonelli, Tiziano Manfredini, and Cristina Siligardi 3245
Thermodynamic Analysis of Grain Aspect Ratio in Fibrous Microstructures of Silicon Nitride ☆ Rishi Raj and Michael J. Hoffmann 3250
Oxidation-Resistant Fiber Coatings for Non-oxide Ceramic Composites ☆ Krishan L. Luthra 3253
Preparation and Magnetic Properties of Barium Hexaferrite Nanoparticles Produced by the Citrate Process ☆ Wei Zhong, Weiping Ding, Yumei Jiang, Ning Zhang, Jianrong Zhang, Youwei Du, and Qijie Yan 3258
Effect of Alkali Ions on the Crystallization of $3BaO{\cdot}5SiO_2$ Glass ☆ Stephen W. Freiman and George Y. Onoda Jr. 3263
Stress-Rupture of Nicalon/SiC Continuous Fiber Ceramic Composites in Air at 950°C ☆ Edgar Lara-Curzio 3268
Densification and Phase Development of Spodumene–Cordierite Glass Powder Mixtures ☆ Jiin-Jyh Shyu and Feng-Ru Chuang 3273
Heavy-Water (D_2O) Take-Up-Induced Lattice Expansion in the High-Temperature Proton Conductor $Ba_3Ca_{1.18}Nb_{1.82}O_{9-\delta}$ ☆ Konstantinos Papathanassopoulos, Helmut Wenzl, and Tilman Schober 3278

Instructions for Preparation of Papers 3281

Author Index 3285

Subject Index 3295

Statement of Ownership 3307